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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/719,235	11/21/2003	Changming Su	0789-0155P	2195

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EXAMINER

RICHARD, CHARLES R

ART UNIT	PAPER NUMBER
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1712

DATE MAILED: 12/02/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/719,235

Applicant(s)

SU ET AL.

Examiner

C. R. Richard

Art Unit

1712

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-17 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-17 is/are rejected.
- 7) ☒ Claim(s) 1-15 and 17 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☒ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☒ Some \* c) ☐ None of:
- 1) ☒ Certified copies of the priority documents have been received.
  - 2) ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  - 3) ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)             | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948)     | Paper No(s)/Mail Date. ____.  |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date ____.   | 6) <input type="checkbox"/> Other: ____.                                    |

## **DETAILED ACTION**

### ***Priority***

1. The Examiner acknowledges Applicant's claim to priority. However, there is may be some issue as to exactly what documents are involved. The oath filed May 25, 2004 claims priority via China documents 02148785.5 and 02148785.3, while a letter filed the same day lists these as 02148785.5 and 02148786.3 with certified copies of documents corresponding to this letter attached. Applicant should clarify/correct accordingly.

### ***Oath/Declaration***

2. The oath or declaration appears defective (see above discussion on priority documents). A new oath or declaration in compliance with 37 CFR 1.67(a) identifying this application by application number and filing date is required as applicable. See MPEP §§ 602.01 and 602.02.

The oath or declaration appears defective, because it does not seem to identify a foreign application for patent or inventor's certificate on which priority is claimed pursuant to 37 CFR 1.55, and any foreign application having a filing date before that of the application on which priority is claimed, by specifying the application number, country, day, month and year of its filing.

### ***Specification***

3. The disclosure is objected to because of the following. First, the Specification and Abstract are not written in standard English. Second, the use of the word “electropositive” in the Title, Abstract and Specification is technically incorrect and/or misleading; a well treating fluid may have components that have a positive charge and may have a zeta potential that is positive, but such a fluid as a whole under any sort of normal conditions may not have an overall positive charge – plasma physics or some other unusual conditions do not appear involved in the invention. Third, page 13 of the specification recites that measurements were made “under the Drilling Fluid Testing Criterion issued by Department of Petroleum”. What criterion is this? This description does not even point where to look. Appropriate correction is required.

### ***Claim Objections***

4. Claim 1 and claims 2-15, 17 by dependency on claim 1 are objected to because of use of the word “electropositive” to describe a well treating fluid; this is technically incorrect and/or misleading (see discussion on this same topic above). Note that claim 9 seems to allow for electropositive to refer to something with a –10mv zeta potential. Claims 4-5 and 9 are objected to because of use the word “or” immediately before the last element of a Markush group written in the “consisting of” format when the word “and” should be used instead. The Markush group of claim 10 is improper since an inorganic salt cannot be an organic agent; also, the use of “such as” in this context should be avoided. Appropriate correction is required.

***Claim Rejections - 35 USC § 112***

5. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

6. Claim 1 and 2-15, 17 (at least by dependency) are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The transition word “containing” is taken as meaning “comprising” (open ended) per MPEP 2111.03. “Containing” is used as a transition word in claim 1; this appears in conflict with the later phrase “the balance is water” which suggests some sort of a closed ended situation. Dependent claims also use “further containing” language which requires an open ended situation in claim 1. (Note that for purposes of examination on the merits, it will be taken that an open ended situation is intended).

Further, use of the phrase “at least a” in the context it is placed in in claim 1 is confusing and unclear, especially as this is done twice in claim 1 and given that the phrase “balance is water” follows. What is Applicant’s intent here?

In addition, claim 17 provides for the “use of production well treating fluid”, but since the claim does not set forth any steps involved in the method/process, it is unclear what specific method/process applicant is intending to encompass. A claim is indefinite where it merely recites a use without any active, positive steps delimiting how this use is actually practiced. As a result, this claim cannot be examined on the merits.

7. The following is a quotation of the fifth paragraph of 35 U.S.C. 112:

A claim in multiple dependent form shall contain a reference, in the alternative only, to more than one claim previously set forth and then specify a further limitation of the subject matter claimed. A multiple dependent claim shall not serve as a basis for any other multiple dependent claim. A multiple dependent claim shall be construed to incorporate by reference all the limitations of the particular claim in relation to which it is being considered.

8. Claim 16 is rejected under 35 U.S.C. 112, fifth paragraph, because it is a multiple dependent claim that depends from another multiple dependent claim. This claim is not examined as a result.

### ***Claim Rejections - 35 USC § 101***

9. The following is a quotation from 35 U.S.C. 101:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

10. Claim 17 is rejected under 35 U.S.C. 101, because the claimed invention is directed to non-statutory subject matter. The claimed recitation of a use, without setting forth any steps involved in the process, results in an improper definition of a process, i.e., results in a claim which is not a proper process claim under 35 U.S.C. 101. See for example *Ex parte Dunki*, 153 USPQ 678 (Bd.App. 1967) and *Clinical Products, Ltd. v. Brenner*, 255 F. Supp. 131, 149 USPQ 475 (D.D.C. 1966).

***Claim Rejections - 35 USC § 102***

11. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

12. Claims 1-8 and 11-15 are rejected under 35 U.S.C. 102(b) as being anticipated by disclosures in GB2245294. This document teaches a relevant drilling fluid.

The GB drilling fluid comprises (a) an aqueous medium, (b) about 0.6 to 4.3 weight percent of a cationic polysaccharide; (c) about 0.07 to 0.9 weight percent of a water soluble polyacrylamide and (d) about 1.43 to 14.3 weight percent alkali or alkaline earth metal salt; it is noted that the combination of (b) and (c) is effective in both fluid loss control and shale inhibition (see Abstract with ppb converted to weight percent). Component (a) may be fresh or salt water, (b) is preferably a cationic starch, (c) may be a cationic polyacrylamide and (d) may be Na, K, Ca or Mg chloride [electrical stabilizing agents similar to iron and aluminum chloride in present claim 10] (see page 3, line 20 to page 4, line 17). Additional conventional components may be included such as weighting agents like barite and a viscosifier such as xanthan gum (see page 3, lines 17-21).

Note that the fluids of the GB reference are taken as electropositive by Applicant's definition (Applicant's exact definition for this is uncertain as explained

Art Unit: 1712

above) as they are of the same composition as those of the rejected claims. The GB fluids would be expected to have a positive zeta potential given their composition in any case.

It is also of note that many of the components recited in the rejected claims are overlapping. That is, they are such that certain specific ones may act in more than one relevant capacity at the same time. It will be taken that this is allowed as the rejected claims do not specifically preclude it (at least where some portion of the specific item is taken to do one function and another part to perform another) - otherwise these claims would be indefinite.

The polymers (b) and/or (c) could be said to function in part as mud building agents as they act like clay in many respects and would be expected to be electropositive (at least with a zeta potential above zero) – see present claim 9. A colloid-stabilizing agent may be a biopolymer or polysaccharide like polymer (b) when it is cationic starch – see present claim 12 – and xanthan gum would also qualify (see above). Lubricants according to Applicant may be cationic surfactants (see page 6 of the specification) – polymers (a) and/or (b) can be classed this way when cationic, and in any case water is a lubricant. An oil layer protective agent is described on page 6 of the specification such that a fluid loss agent may perform this function.

As to claims 13-15, at least some of the fluids of the GB reference described would inherently meet the zeta potential limitation of these claims.



***Claim Rejections - 35 USC § 103***

13. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

14. Claims 1-8 and 10-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over disclosures in GB 2245294 in view of Lauzon in US Patent 4,507,210 and Khalafalla et al. in US Patent 4,765,415.

The disclosures of GB 2245294 have been discussed in detail above. As seen there, the compositions disclosed in this reference are noted for their shale inhibiting quality. This reference teaches all of the limitations of the rejected claims in the proper context, but it does not disclose the use of any of the specific agents of claim 10 or many of those of claim 12.

Lauzon discloses the use of well fluids for shale inhibition that contain shale inhibitor compounds at a pH where the shale to be treated would have a zeta potential

Art Unit: 1712

range of  $-10$  to  $+20$  mV (see column 3). It is of note that salts such as alkali metal chlorides and cationic polymers may be used as inhibitors (see column 5). This mV teaching is also of some relevance to the rejection of claims 13-15.

Khalafalla teaches that shale zeta potential in a drilling context may be adjusted with  $Al^{3+}$  (such as via  $AlCl_3$ ) among other materials such as acid, base and  $Na^+$  (such as via  $NaCl$ ) with  $Al^{3+}$ ,  $Na^+$  and acid for raising the zeta potential (see column 3, line 50 to column 4, line 10).

From these teachings of the GB reference, Lauzon and Khalafalla, it would have been obvious to one of ordinary skill in the art that an aluminum salt such as the chloride or sulfate could be substituted at least in part for the salt used in the shale inhibiting fluids of the GB reference, thus rendering rejected claim 10 obvious.

In claim 12, the teaching in the GB reference about use of viscosifiers would render the use of hydroxyethylcellulose, polymeric alcohols, biopolymers and polysaccharides as viscosifiers as obvious to one of ordinary skill in the art, as these are notoriously well known for this purpose.

15. Claims 1-8 and 11-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over disclosures in GB 2245294 in view of Patel et al. in US Patent 5,350,740.

The GB reference has been discussed in detail above. As seen there, the compositions disclosed in this reference are noted for their shale inhibiting quality. This

Art Unit: 1712

reference teaches all of the limitations of the rejected claims in the proper context, but it does not disclose the polyquaternary ammonium salt of claim 8.

Patel et al. teaches such a polyquaternary for use as a clay inhibitor (see column 5, line 60 to column 6, line 60) useful in a range of about 0.1 to 2.9 weight percent (see column 9 lines 13-18 after unit conversion). It is of course obvious to employ two or more materials for some purpose when they are known as being useful for this purpose individually. *In re Kerkhoven*, 205 USPQ 1069 (CCPA 1980). Thus, it would have been obvious to one of ordinary skill in the art to combine the shale inhibiting quaternary of Patel with the shale inhibiting fluids of the GB reference, thus rendering claim 8 obvious.

Additionally, polyquats such as those of Patel are notoriously well known as viscosifiers for drilling fluids (Applicant seems to agree in rejected claim 8). The drilling fluids of the GB reference may contain viscosifiers (see above) and do contain polysaccharides and polyacrylamides which are also viscosifiers.

### ***Allowable Subject Matter***

16. Claim 9 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, and objections set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

### ***Conclusion***

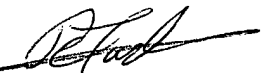
17. The prior art made of record and not relied upon is considered pertinent to Applicant's disclosure: US 3,342,732; 3,617,568; 4,925,247 and 2003/0114315.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to C. R. Richard whose telephone number is 571-272-8502. The examiner can normally be reached on M-Th, 8am-6pm and alternate Fridays, 8am-5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Randy Gulakowski can be reached on 571-272-1302. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

*Charles M. Richard*

  
**PHILIP TUCKER**  
**PRIMARY EXAMINER**  
ART UNIT 1712